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ABSTRACT

Two new aspects of English composition were studied in a 10-week project involving 104 Grade 7 pupils and 4 teachers. One method, the Speaking-Listening-Writing approach involved the use of dictation equipment used by students and teachers in the audio-instructional program. The second experimental method of composition involved a transformational sentence-combining program to replace instruction in formal grammar. Four different conditions of composition instruction were included: (1) audio-instructional approach to composition using sentence-combining instead of a traditional curriculum; (2) audio-instructional approach with a traditional curriculum and sentence-combining method; (3) sentence-combining model, no machines nor teacher feedback used; and (4) "conventional" grammar and composition program. The results indicate that a method of composition instruction which allows the student to speak their ideas before they write them and also allows the teacher to give individual changes. No indications of any favorable changes in syntactic patterns were found. The consensus concerning the Speaking-Listening Writing approach is that further research is needed. The appendix includes references on transformational sentence-combining, audio instruction, and general information. (GR)

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INDIVIDUALIZATION OF COMPOSITION INSTRUCTION THROUGH THE USE OF DICTATION EQUIPMENT AND TRANSFORMATIONAL SENTENCE-COMBINING

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Description of Study

Project Overview

Two new aspects of English composition instruction were studied in a 10-week project involving 104 grade 7 pupils and four teachers. One experimental method involved the use of dictation equipment to be used by both pupils and teachers in an audio-instructional program. The pupils were assigned regular composition topics and were given several questions concerning the topics which they were expected to answer in their written compositions. However, instead of beginning by writing their compositions, they began their work by speaking their ideas about the assigned topic and recording these ideas into their dictation units. This audio-instructional method allowed the pupils the opportunity to go back and listen to their ideas and modify them where necessary. The pupils then used these spoken compositions as foundations upon which their written compositions were constructed. The teacher received the pupil's spoken composition and written composition and dictated his suggestions and corrections on each pupil's individual tape, so that the pupil received a personal interview about each of his composition products.

The second experimental method of composition instruction involved in this study was a model building program designed to replace instruction in formal grammar with a transformational sentence-combining program. In this approach, pupils were given models of syntactic structures and were expected to imitate these models in the sample exercises as well as in their spoken and written compositions.

Four different conditions of composition instruction were included in the present study. Group 1 used the audio-instructional approach to composition construction and individualization of instruction; they also used the sentence-combining model approach instead of a traditional curriculum. Group 2 used the audio-instructional approach with a traditional curriculum content. Group 3 used the sentence-combining model approach entirely; that is, they did not use dictation machines to construct compositions or receive extensive individual feedback and reinforcement from the teacher. Group 4 experienced a "conventional" grammar and composition program.

The investigators in the study were interested in the effects of these two experimental variables upon the pupils' ability to write a variety of simple and complex structures and their attitudes toward the study of composition. The results of this study indicate that a method of composition instruction which allows the pupils to speak their ideas before they write them and which allows the teacher to individualize instruction in composition via an interview technique might bring about favorable changes in pupil and teacher attitudes toward the study of composition. There were no indications that either of the experimental methods brought about favorable changes in pupils' syntactic patterns.

It is felt by the investigator and the teaching staff involved in this study that both experimental variables deserve further research. Many of the beneficial effects of the programs were not measured in the present study, such as the increased enthusiasm with which both teachers and pupils

entered into their work and the improved technical and communicative skills revealed in pupils' speech and writing products. The speaking-listening-writing approach to composition instruction deserves special consideration and continued study.

A suggested reading list in Appendix A will provide literature review sources and the studies upon which the theoretical rationale was built.

Hypotheses

The primary purpose of this study, which was conducted on the 7th grade level with predominately suburban, white, middle class subjects was to test the following null hypotheses:

> There are no significant differences in improvement in the syntactic fluency of pupils' written compositions among the Experimental 1 treatment group (audio-instructional program plus sentence-combining), Experimental 2 treatment group (audio-instructional program with traditional curricular content), Experimental 3 treatment group (sentence-combining program), and the Control group (traditional program).
>
> There are no significant differences in improvement of pupils' attitudes toward the study of composition in school among the Experimental 1, Experimental 2, and Experimental 3 treatment groups and the Control group.

Design of the Study

The following design was employed in the study:

With Sentence-Combining	No Sentence-Combining	With Sentence-Combining	No Sentence-Combining
N = 26	N = 26	N = 26	N = 26
(Experimental 1)	(Experimental 2)	(Experimental 3)	(Control)
With Audio-Instruction	With Audio-Instruction	No Audio-Instruction	No Audio-Instruction

This is a simple 1 x 4 design based upon the Pretest-Posttest Control Group design (Number 4) as described by Campbell and Stanley in the Handbook of Research on Teaching, (Gage, 1963).

Sample--Description and Selection

The sample included 104 grade 7 pupils assigned to four classes at a junior high school in central Pennsylvania. The community served by the school is suburban and predominantly white. The families living within the district served by the school range from lower-middle-class to upper-middle-class socioeconomic status.

In an effort to reduce the number of uncontrolled variables in the study, a preproject screening test, the Sequential Test of Educational Progress: Writing - Form 3A (STEP), was administered in June 1970 to the 6th grade pupils in those elementary schools which feed into the target junior high school. The resulting scores were distributed on a descending ranking scale on level of competency. The midpoint of the second quartile was determined; 52 pupils whose scores were in consecutive ordinal positions below the midpoint and 52 pupils whose scores were in consecutive ordinal positions above the midpoint were selected and randomly assigned to the three treatment groups and the control group. The STEP scores for those subjects comprising the sample ranged from 21 to 30, whereas, the total population scores ranged from 7 to 53.

As measured by the STEP writing test, the pupils in the sample were those who were experiencing serious difficulties with written expression but were not at a retardation level requiring the tutorial aid of a language arts specialist. This sample included 55 males and 49 females.

Teacher Information

The teachers employed in this study were randomly selected from those who volunteered to take part in the project. The average teaching experience was seven and one-half years, with experience ranging from 5 to 12 years. All of them had at least one year's teaching experience in the experimental school at the 7th grade level. Each of the four teachers was a certified English teacher with an English major or minor in his undergraduate study.

Instrumentation

In order to determine the improvement in the syntactic fluency in composition, frequency counts of syntactic structures and their corresponding functions in compositions were made by use of the Linguistic Analysis Worksheet. This was modeled after the instrument devised by O'Donnel, Griffin and Norris for their study, Syntax of Kindergarten and Elementary School Children: A Transformational Analysis (1967), which is an investigation of language based upon a T-unit analysis advocated by Hunt (1964, 1965). This analysis facilitated the frequency counts necessary to evaluate the three pretest compositions and three matched posttest compositions used to measure changes in syntactic fluency. The raters were not aware of the authorship of the compositions, since the papers were typed exactly as they were written and randomly assigned to raters, nor were the raters connected in any way with the subjects involved in the project.

The measurement of the pupils' pretest and posttest attitudes toward the study of composition in school was accomplished through the use of the Student Attitude Questionnaire, an instrument utilizing the semantic differential constructed to include 19 bipolar scales. Scales were selected because of their relevance to a pupil's expressed feelings about a particular subject. The factors involved include affective perception, worthiness, usefulness and difficulty.

Results

Syntactic Fluency

Syntactic fluency refers to a pupil's ability and willingness to use a variety of syntactic structures, both simple and complex, in constructing written compositions. Generally speaking, the simple structures are used by pupils quite often in their composition work. The present project was designed to measure the effects of two independent variables upon the ability and willingness of 7th grade pupils to use a variety of syntactic structures, especially those structures which are considered relatively complex and are rarely, if ever, used by the majority of 7th grade pupils. The relative complexity of structures was determined by the number of transformations necessary to produce such structures, and the Linguistic Analysis Worksheet was designed to aid raters in identifying these structures when they appeared in pupils' compositions.

Each subject in the study wrote three pretest compositions and three matched posttest compositions which were analyzed by independent, trained raters. Each of these compositions was considered an independent measure of syntactic fluency, since each composition topic elicited different response patterns.

An analysis of variance of each of the three pretest compositions on the syntactic fluency measure revealed that there were no statistically significant differences existing among the instruction group means on any of the pretest measures.

An analysis of variance on the posttest means for the instructional groups for the three compositions appears in Table I. While there were no significant differences among the means for instruction groups on posttest Composition 2 and posttest Composition 3, there was a significant difference among means ($< .01$) on posttest Composition 1.

Dunn's C-Statistic was selected as a post hoc multiple range test to allow for those comparisons necessary to isolate and determine the magnitude of the differences among instruction group means. The multiple comparisons indicated clearly that the differences which existed were between those groups using transformational sentence-combining and those using a conventional approach to composition instruction. The two highest mean scores, the Experimental 2 and Control groups, were significantly different from the two lowest means, the Experimental 1 and Experimental 3 instruction groups. The Experimental 1 mean did not differ significantly from the Experimental 3 group, nor did the Experimental 2 group differ significantly from the Control group.

Table I

Analysis of Variance for Posttest Scores on Composition 1 on the Syntactic Maturity Variable

Source of Variance	Sum of Squares	Degrees of Freedom	Mean Square	F*
Between Treatments	184.903	3	61.634	4.803(<.01)
Within Treatments	1283.107	100	12.831	
Total	1468.010	103		

Analysis of Variance for Posttest Scores on Composition 2 on the Syntactic Maturity Variable

Source Variance	Sum Squares	Degrees of Freedom	Mean Square	F*
Between Treatments	11.943	3	3.981	0.659(NS)
Within Treatments	603.514	100	6.035	
Total	615.457	103		

Analysis of Variance for Posttest Scores on Composition 3 on the Syntactic Maturity Variable

Source of Variance	Sum of Squares	Degrees of Freedom	Mean Square	F*
Between Treatments	44.926	3	14.975	1.629(NS)
Within Treatments	919.193	100	9.191	
Total	964.119	103		

*$_{3,100}F_{.05} = 2.70$ $_{3,100}F_{.01} \geq 3.98$

The results of this study cast serious doubt upon the utility of this kind of sentence-combining program with a student population which resembles the sample population used in the present study. It was not found that pupils from a suburban setting who are experiencing serious difficulty with writing skills as measured by a standardized test could achieve at a higher level of syntactic fluency after a sentence-combining program of this kind. It must be pointed out, however, that achievement was defined as syntactic fluency--that is, the ability and willingness of pupils to use a variety of syntactic structures, both simple and complex, in the written compositions. This, of course, disregards the content quality of pupil composition as well as the mechanical correctness of the compositions. As discussed later in this report, when the data on pupil attitudes toward the study of composition are analyzed, any conclusions reached as a result of these analyses cannot be considered as a justification of instruction in formal grammar instruction with its accompanying language of analysis, since the amount of formal grammar instruction actually observed throughout the duration of the experimental period was minimal. The "conventional" teachers concerned themselves primarily with pupils' communication and mechanical skills.

Despite the limitations imposed by the problems of generalizability of the results of this study, the fact remains that those classes experiencing the transformational sentence-combining program actually produced fewer complex structures at the conclusion of the experimental period than they did prior to the treatment. The fact that a t-test on pre-post mean scores for syntax revealed a significant decrease for the Experimental 1 instruction group is noteworthy. While the changes in mean scores for the remaining instruction groups failed to reach significance, the direction of the changes is further evidence of the academic impracticality of a sentence-combining approach to composition instruction such as the program designed for this study.

Although the analyses of variance on pretest and posttest means failed to show significant differences among instruction group means on Composition 3, it should be pointed out that a t-test between pretest and posttest scores disclosed a significant positive posttest gain for the Control group. Once again, the analysis supports the superiority of the Control group subjects on syntactic fluency which was shown in the analysis of Composition 1 results.

Results Regarding the First Hypothesis

A significant F ratio ($p < .01$) was found for means on the syntactic fluency measure on one of the three posttest compositions. The difference was identified as existing between those groups using the sentence-combining program (Experimental 1 and Experimental 3) and those not using the sentence-combining program (Experimental 2 and Control). The posttest class means favored the groups who were using a "conventional" composition instruction program. On one of the three posttest composition measures of syntactic fluency, the treatment group experiencing the audio-instructional mode in conjunction with the sentence-combining program had a significantly lower mean score on the posttest than on the pretest. Therefore, the first hypothesis was rejected.

Discussion of Results on Syntactic Fluency

Every researcher whose data fail to affirm his hypothesis asks what went wrong with the study or what was faulty in his rationale or materials. Why did the pupils in the Experimental 1 treatment group actually produce significantly fewer complex structures at the end of the program than they did at the beginning? In trying to answer this question, we looked closely at our curriculum materials--they seemed adequate to the teachers using them. We reconsidered our measurement techniques--they were crude indices perhaps, but were reliable and seemingly adequate. The teacher involved with the Experimental 1 treatment was, in the judgment of the investigators, a seasoned, talented teacher. Lastly, we looked at the hierarchical structure we were using in the transformational sentence-combining program. The hierarchical structure was as follows:

1. Kernel reinforcement and nonsentential extinction
2. Passive and negative passive
3. Relative clauses as expansion modifiers
4. Sentence modifiers as movables
5. Appositives as specific reduction of clauses
6. Infinitives and participles as modifiers
7. Reduction of clauses to phrases or single word modifiers
8. Coordination of main slots
9. Coordination of modifiers
10. Clauses as nominals not embedded in modifiers
11. Clauses as nominals embedded in modifiers

The plan was to begin with step one on the hierarchy and proceed through the hierarchy as the 10-week program progressed. Each new step in the hierarchy was introduced along with a review and practice of structures previously learned at earlier steps. This means that kernel sentence structures and a few of the other easier structures were reinforced during numerous class sessions, while the complex structures learned later in the hierarchy received much less reinforcement than those easier structures appearing first in the hierarchy and early in the experimental program.

The hierarchy should have been presented in exactly reversed order, since the easier structures, which were being produced in the pupils' writing products before the experimental treatment began, were being reinforced over and over again throughout the entire experimental period. Is it any wonder that the Experimental 1 treatment group produced fewer complex structures and more simple structures at the end of the experimental treatment? They learned and produced in the written compositions exactly what they were reinforced to learn. In essence, the children in Experimental 1 did significantly change their writing behaviors and this behavior change was determined by the simple learning principle of positive reinforcement of desired writing behaviors. It is unfortunate that the investigators failed to recognize the illogic in what seemed to be very logical hierarchical progression from simple to complex.

There is one final question to be asked. Would the reverse ordering of the transformational sentence-combining have produced a reversed change in the experimental treatments. If so, then the Experimental 1 treatment would have made significant positive gains in syntactic fluency. This study has some serious implications for further research.

Attitude Assessment and Attitude Change

Pretest and posttest means and standard deviations for the scores on the attitude measure were computed for each instruction group in the study (Table II). Table II discloses that, with the exception of the Experimental 2 group, the attitude scores as measured by a semantic differential technique decreased at the end of the 10-week experimental period.

Table II

Pretest-Posttest Means and Standard Deviations for the Attitude Measure for the Instruction Groups

	Pretest		Posttest		Difference	t
	Mean	Standard Deviation	Mean	Standard Deviation	Posttest-Pretest	
Exp. 1	88.280	20.288	86.400	17.692	-1.880	-0.571
Exp. 2	96.760	13.470	100.880	13.363	+4.120	+2.098
Exp. 3	84.960	16.420	84.400	22.449	-0.560	-0.123
Control	95.640	13.487	92.720	18.114	-2.920	-0.783

Correlated t's on pretest-posttest scores show that the Experimental 2 treatment group was the only instruction group which changed significantly. This indicates a positive gain in scores on attitude toward the study of composition for the group using audio equipment within a "conventional" composition program.

A one-way analysis of variance on the pretest means for the instruction groups on the attitude measure revealed that there was not a statistically significant difference among the instruction group means. Because of a lack of complete data measures on one subject from each of the instruction groups, the N per group was reduced to 25 subjects per cell for the analyses on the attitude measure.

An analysis of variance on the posttest attitude means was computed (Table III). The analysis revealed that there was a significant difference among the group means ($< .01$).

Table III

Analysis of Variance for Posttest Scores on Attitude Toward the Study of Composition

Source of Variance	Sum of Squares	Degrees of Freedom	Mean Square	F*
Between Treatments	4203.710	3	1401.236	4.039(< .01)
Within Treatments	33298.880	96	346.863	
Total	37502.590	99		

*$_{3,100}F_{.05} = 2.70$ $_{3,100}F_{.01} = 3.98$

Dunn's C-Statistic was selected as a post hoc multiple range test to allow for those comparisons necessary to identify which groups accounted for differences among the means. The multiple comparisons among the instruction group means indicated that the Experimental 2 group, with subjects using audio-units within a "conventional" formal grammar approach to composition instruction, accounted for virtually all the difference. The Experimental 2 group was significantly different from the Experimental 1 group and the Experimental 3 group at the .05 level of significance. Experimental 2 is also significantly different from the combination of the other three groups. This finding might indicate that what many English educators have been saying for several decades is indeed true. That is, English education would be helped greatly if the classroom teacher had the time and facility to provide his pupils of composition with feedback in the form of identification and correction of errors, reinforcement in the form of praise for desired writing behaviors, and that kind of encouragement or direction which is ordinarily afforded the pupil only during an individual interview-type situation. This indication, as slight as it is, must be limited to the area of attitude toward the study of composition, since improved attitude cannot be said to foster increased achievement in composition as it was measured in this study. Also, any conclusions reached as a result of the analysis of these attitude data cannot be construed as a justification of instruction in formal grammar with its accompanying language of analysis for three basic reasons: First, the study was not designed to isolate the elements of formal grammar instruction from instruction in mechanics and usage instruction or from personal encouragement instruction while the teacher was dealing with the pupils' writing products in the interview-type situation; secondly, while instructing the pupils concerning their writing products, most of the recording time was spent working with mechanics, usage and teachers' personal evaluations of the content of the compositions; and, thirdly, the amount of formal grammar covered in group-teaching situations was limited because of the amount of in-class time spent by pupils constructing compositions orally and scribally and because of the time consumed when pupils listened to their recorded interviews.

Results of the analysis of variance seem to indicate that a facility for personal communication between pupil and teacher in the form of taped interviews increased the opportunity for the teacher to positively affect pupils' attitudes toward the study of composition. On the other hand, it appears that the particular kind of sentence-combining program used in the present study, with its accompanying reinforcement design, was ineffective in bringing about improved attitudes toward composition.

Another explanation for the findings concerning attitude toward the study of composition must be considered--the teacher variable. The novel effect produced by the use of dictation-transcription machinery in the composition classroom combined with the teacher's enthusiasm for a new mode of composition instruction whereby he can intensify his instruction and individualize it at the same time may have been enough to produce the favorable effects upon the class attitude. In essence, strong positive teacher attitude might infect pupils' attitudes. It would seem that the teacher's enthusiasm plays more a major role here than does the novelty of using machinery, since the pupils in the Experimental 1 group also used the equipment and the class mean for the Experimental 1 group was not favorably affected. It seemed, at first consideration, that teacher enthusiasm for this new instructional mode could not account for the differences, since both teachers using the machines were enthusiastic about the use of the dictation-transcription equipment in the composition classroom. However, one possible distinction must be underscored. The difference between the effects produced by the use of machines in the Experimental 1 and Experimental 2 instruction groups might lie in the fact that the Experimental 1 teacher was not teaching as he was accustomed to teaching, since he was working with the transformational sentence-combining program, and the primary function of the audio units within his program was as a facility whereby the teacher could reinforce the pupil when desired writing behaviors were produced. In other words, the enthusiasm which the teacher of the Experimental 1 group obviously had for the new mode of instruction may not have been communicated as effectively to his class as it had been by the teacher of the Experimental 2 group, simply because the Experimental 1 teacher was teaching neither as he was trained to teach nor as he had taught prior to project implementation.

The enthusiasm for the utilization of the dictation-transcription equipment as a teaching aid in the composition classroom was equally shared by both teachers using the machines. Upon the conclusion of the experimental period, both teachers sent unsolicited memorandums to their immediate supervisory personnel in which they discussed in very favorable terms the potential of such an instructional mode in the English classroom. These teachers were evaluating from the global perspectives of experienced educators working directly with the pupils as individuals who could not possibly be considered exclusively as pupils of composition. These appraisals made by the teachers are at least as important as any statistical analysis of a paper-and-pencil measure, and their reactions are certainly worth considering before judgments as to the worth of this new mode of instruction are finalized.

Results Regarding the Second Hypothesis

A significant F ratio ($p < .05$) was found for posttest means on the attitude measures. The second hypothesis was rejected. The difference among the means favored one instruction group. The Experimental 2 instruction group, with pupils experiencing a "conventional" composition program utilizing

an audio-instructional mode, showed a significant positive gain in mean score on attitude toward the study of composition. The remaining three treatment groups were not significantly different from one another.

Summary of Results

Limitations. Within the framework of operationalism the generalizations which can be made in this investigation are limited to the operations used to define the concepts of syntactic fluency and "conventional" composition program. In regard to the attitude measurement, the generalizability of the findings is limited by the stability of the instrument across time. The generalizability is severely limited by the project sample, since the subjects in this study were, for the most part, within the second quartile of the available population. It must also be pointed out that the present study concerned itself with syntax only, to the total exclusion of those other elements of composition which are of major concern to English educators--content quality, mechanics, vocabulary, etc.

Effects of Sentence-Combining. The findings in this study do not substantiate the earlier findings reported by Mellon (1969). The particular sentence-combining program used in this study with this particular sample was ineffective in bringing about improvements in syntactic fluency in composition. These results might be explained by several possible conditions. It may be that the sentence-combining program was of inferior quality or was inadequately matched to the abilities of the subjects comprising the sample. However, the teachers reported regularly that, with the possible exception of a particular structure's position in the hierarchy, the sentence-combining program was an acceptable means of composition instruction. In fact, the pupils found little difficulty in using the desired structures in their routine compositions. The models and practices were reported as reasonable for in-class instruction. It seemed that the pupils were able to use a variety of sentence structures, but they did not willingly use them when they were not specifically told to do so. The pupils' syntactic repertoire may have been refreshed, but their writing habits were not positively affected.

The investigators are convinced that the hierarchical approach to the practice and reinforcement schedule used in the study caused serious damage to the sentence-combining program as it was designed. The order of curricular presentations should have been exactly reversed.

The duration of the experimental time period is a second factor which may account for the failure of the sentence-combining program. Perhaps a 10-week period is an insufficient amount of time to change writing habits which have been forming for several years. It must be pointed out, however, that 10 weeks of concentrated composition instruction is at least as much time as is normally devoted to composition instruction throughout the 7th grade school year.

The measurement, so critical to the success of research efforts, must also be considered when these research results are studied. The weighting system for nominal structures produced in pupil compositions used in this study was a blunt instrument at best. A weighting scale of six possible quality points to be assigned to designated nominal structures may not be refined enough to measure the finer differences among syntactic structures produced in the pretest-posttest composition act.

The sentence-combining program designed for this study had little or no effect upon pupils' attitudes toward the study of composition. If the study had been designed as a purely descriptive study, the sentence-combining program would have been reported favorable. The Experimental 3 teacher was and still remains very enthusiastic about the use of a sentence-combining approach to composition instruction for pupils with writing deficiencies. In addition to her work with the Experimental 3 instruction group, the teacher used the experimental program with nonexperimental classes and also suggested the sentence-combining approach to other teachers. She intends to use a modified version of the program in the future. The Experimental 1 teacher found the sentence-combining approach to composition instruction satisfactory. He found it difficult to use in combination with an audio-instruction mode primarily because the introduction of two radically different facets of composition instruction at the same time required a great deal of adjustment on the part of both teacher and pupils. He would have preferred to work with one of the experimental variables for a few weeks before trying to work with them together.

Effects of Audio-Instruction. The present study cannot support the use of an audio-instruction mode of composition instruction if such a mode is initiated primarily as a means of bringing about marked improvement in syntactic fluency. The results of the attitude measure tend to provide some evidence that the use of audio-equipment in the composition classroom might improve the pupils' attitude toward the study of composition. Unsolicited letters of evaluation of the audio-instructional mode which were presented by the Experimental 1 and Experimental 2 instruction group teachers, testify to teacher enthusiasm for such an approach to composition instruction. Their evaluations should be considered.

Implications for Future Research

Sentence-Combining Program.

1. Replicate the present study reversing the presentation of syntactic structures as they appear in the proposed hierarchy.

2. Replication studies should be considered with various pupil population strata based on writing ability levels.

3. It is suggested that pretest compositions be used as diagnostic measures of syntactic fluency. Instead of a hierarchical, longitudinal program of minimal practice and reinforcement across all nominal structures, each pupil's program should be diagnostically designed with proportional practices and reinforcements as determined by strength, needs and deficiencies revealed by pretest writing products.

4. It is also suggested that sentence-combining studies in a concentrated composition program be compared with sentence-combining studies presented throughout an entire school year as done in "conventional" programs of composition study.

5. There are research implications for measurement of syntactic fluency. A refinement is necessary. Perhaps a weighting scheme based upon the actual number of transformations required for the pupil to produce each nominal structure would be more realistic.

6. In addition to syntax, measures of content quality and mechanical correctness are suggested for a more adequate description of changes within treatments.

7. For the pretest-posttest measurement of pupils' syntactic fluency in writing, analysis of more than three compositions would provide a more adequate assessment.

Audio-Instruction

8. It was felt by the teachers involved in the present study that much of the progress they saw in their pupils was not being measured. Even though syntax was the area of measurement concern, improvements in speech skills, mechanical correctness and general communication skills were noteworthy. These areas should be investigated.

APPENDIX A

Suggested Readings

Transformational Sentence-Combining

Asker, W. Does knowledge of formal grammar function? School and Society, 1923, 17, 107-111.

Bateman, D. R. and Zidonis, F. J. The effect of a knowledge of generative grammar upon the growth of language complexity. Columbus: The Ohio State University, 1964. Project 1746, Cooperative Research Program, Office of Education, U. S. Department of Health, Education, and Welfare.

Bertsch, R. E. Linguistic birds and sentence structure. English Journal, 1962, 51, 46-49.

Borass, J. Formal English grammar and the practical mastery of English. Ph. D. dissertation, University of Minnesota, 1917.

Butterfield, C. J. The effect of a knowledge of certain grammatical elements on the acquisition and retention of punctuation skills. Ph. D. dissertation, University of Iowa, 1945.

Catherwood, C. A study of relationships between a knowledge of rules and ability to correct grammatical errors and between identification of sentences and knowledge of subject and predicate. Master's thesis, University of Minnesota, 1932.

Chomsky, N. A. Syntactic structures. 's-Gravenhage: Mouton and Company, 1957.

Chomsky, N. A. A transformational approach to syntax. In Hill, A. A. (Ed.), The third Texas Conference on Problems of Linguistic Analysis of English. Austin: Univeristy of Texas Press, 1962.

Crawford, C. C. and Royer, M. M. Oral drill versus grammar study. Elementary School Journal, 1935, 36, 116-119.

Cutright, P. A comparison of methods of securing correct language usage. Elementary School Journal, 1934, 34, 681-690.

Evans, J. W. The social importance and the pupil control of certain punctuation variants. Ph. D. dissertation, University of Iowa, 1939.

Frogner, E. Grammar approach versus thought approach in teaching sentence structure. English Journal, 1939, 28, 518-526.

Harris, R. J. An experimental inquiry into the functions and value of formal grammar in the teaching of English, with special reference to the teaching of correct written English to children aged twelve to fourteen. Ph. D. dissertation, University of London, 1962.

Hoyt, F. S. The place of grammar in the elementary curriculum. Teachers College Record, 1906, 7, 1-34.

Hunt, K. W. Differences in grammatical structures written at three grade levels, the structures to be analyzed by transformational methods. Report to the U. S. Office of Education, Cooperative Research Project No. 1998, Tallahassee, Florida, 1964.

Hunt, K. W. Grammatical structures written at three grade levels. Champaign, Illinois: National Council of Teachers of English, 1965.

Ianni, L. An answer to doubts about the usefulness of the new grammar. English Journal, 1964, 53, 597-602.

Lees, R. B. Grammatical analysis of the English comparative construction. Word, 1961, 17, 171-185.
Mallis, J. An experiment with the new grammar. English Journal, 1957, 46, 425-427.
Mellon, J. C. Transformational sentence-combining: A method for enhancing the development of syntactic fluency in English Composition. United States Office of Education Cooperative Research Project No. 5-8418. Cambridge, Massachussetts: Graduate School of Education, Harvard University, 1967.
Milligan, J. P. An evaluation of two methods of teaching written sentence structure. Elementary English Review, 1939, 16, 91-92, 106.
Newsome, V. L. Expansions and transformations to improve sentences. English Journal, 1964, 53, 327-335.
Ney, J. W. Applied linguistics in the seventh grade. English Journal, 1966, 55, 895-897.
Rapeer, L. W. The problem of formal grammar in elementary education. Journal of Educational Psychology, 1913, 4, 127-137.
Senatore, J. J. SVO: A key to clearer language teaching. English Journal, 1957, 46, 419-424.
Symonds, P. M. Practice versus grammar in the learning of correct English usage. Journal of Educational Psychology, 1931, 22, 81-95.
Tyler, P. New concepts and content in the English curriculum. The English Leaflet, 1962, 61, 4-10.
Warner, P. G. and Guiler, W. S. Individual versus group instruction in grammatical usage. Journal of Educational Psychology, 1933, 24, 140-151.
Wolfe, D. M. Grammar and linguistics: A contrast in realisties. English Journal, 1964, 53, 73-78.

Audio-Instruction

Cohen, N. Correcting compositions without a pencil. English Journal, 1950, 39, 579-580.
Kallsen, T. Teachers' use of dictating machines to improve the written composition of college students. Cooperative Research Project No. 2311 of the Office of Education, U. S. Department of Health, Education, and Welfare, Nacogdochese, Texas: Stephan F. Austin State College, 1965.
Lohmann, I. Dictation: A bridge between oral and written composition. Speech given at the National Council of Teachers of English Annual Convention, Honolulu, 1967.
Lumsden, R. Evanston, Illinois, Township High School adds to its program: The use of dictation machines in grading English themes. The Bulletin of the National Association of Secondary School Principal, 1962, 223-226.
McGrew, J. B. An experiment to assess the effectiveness of the dictation machine as an aid to teachers in evaluation and improvement of student composition. Cooperative Research Project No. 9F002 U. S. Department of Health, Education, and Welfare, 1969.
Raub, D. K. The audio-lingual drill technique. Master's thesis, George Peabody College for Teachers, 1966.
Reeves, B. The dictation machine as an aid in correcting compositions. Speech at Annual Convention of National Council of Teachers of English, San Francisco, 1963.

Tanner, B. Teacher to disc to student. English Journal, 1964, 53, 362-363.
Tovatt, A. L. and Miller, E. L. Oral-aural-visual stimuli approach to teaching written composition to 9th grade students. Ball State University, 1967. Project No. 5-03892-12-1, Office of Education, U. S. Department of Health, Education, and Welfare.
Zoellner, R. Talk-write: A behavioral pedagogy for composition. College English, 1969, 30, 267-320.

General Information

Braddock, R. A conference for an advanced standing program in composition. United States Office of Education Cooperative Research Project No. F-051. The University of Iowa, Iowa City, 1965.
Braddock, R., Lloyd-Jones, R. and Schoer, L. Research in written composition. Champaign, Illinois: National Council of Teachers of English, 1963.
Creeger, G. R. Report of the workshop on advanced placement program standards in English. New York: Metropolitan School Study Council, 1964.
Dunn, Olive Jean. Multiple comparisons among means. Journal of the American Statistical Association, 1961, 56.
Gage, N. L. Handbook of research on teaching. Chicago: Rand, McNally and Company, 1963.
O'Donnell, R. C., Griffin, W. J. and Norris, R. C. Syntax of kindergarten and elementary school children: A transformational analysis. Champaign, Illinois: National Council of Teachers of English, 1967.